

REMARKS

Claims 9-14, 26-36, and 39-42 stand rejected in the Office Action. Claims 9, 26, and 36 are amended in this reply. Upon entry of the Amendments, claims 9-14, 26-36, and 39-46 remain pending.

Support for the newly offered claims is found in the specification as filed, for example, in paragraph 20 on page 6. The boron compound ranges from 0.1 to 10% or the slurry, while the binding agent (silica) ranges from 60 to 90%. The ratio of B-compound to binding agent is therefore at least 1:900 (i.e. 0.1:90) and at most 1:6 (i.e., 10:60). Applicants respectfully request entry of the Amendments.

REJECTION UNDER 35 U.S.C. § 103

Claims 9-14, 26-33, and 42 stand rejected as obvious over the DiChiara reference in view of the Kourtides reference. Claims 34-36 and 39-41 are rejected as obvious over the DiChiara reference in view of the Kourtides reference and further in view of the Baker reference. The Examiner maintains the rejections for the same reasons as given in previous Office Actions. Briefly, the Examiner takes the position that the DiChiara reference discloses the slurries and method of the current invention except for the presence of a boron compound. The Examiner states that the DiChiara reference suggests that emissivity agents including molybdenum disilicide can be added to the slurry. The Examiner then cites the Kourtides reference for the proposition that some boron compounds such as silicon hexaboride and silicon tetraboride are known as emissivity agents. Finally, the Examiner cites the Baker reference for the proposition that boron carbide and similar compounds are known emissivity agents. The Examiner then concludes that the invention would have been obvious a person of skill in the art because the

references would motivate a person of skill in the art to substitute a boron containing emissivity agents for the molybdenum silicide emissivity agents recommended in the DiChiara reference. Applicant respectfully traverses the rejections as applied to the amended claims and requests reconsideration.

A novel invention is non-obvious and therefore patentable unless the prior art teachings are such that the invention as a whole would have been obvious to one of skill in the art at the time the Application was filed. The invention as a whole includes limitations recited in the claims and described in the specification, as well as properties or advantages inherent in the invention. Importantly, it is noted that method claims may be non-obvious and therefore patentable even if one or more steps of the claims recite the use of known or obvious compositions. That is, the invention as a whole inquiry includes not only the compositions used but the methods used and the results achieved.

The invention as a whole, as reflected in the current claims, is drawn to methods of using novel slurries for increasing the temperature stability of tiles to which the slurries have been applied. Note that claim 9 recites a method for protecting a surface of and increasing the temperature stability of a porous ceramic body, while claim 26 recites a limitation that the surface protected body can be reheated to 2500°F without cracking. The invention as a whole includes these advantages, which are recited in the claims. In considering the effect of the cited prior art references, it is appropriate to inquire whether the references would have made the invention as a whole—including the increased temperature stability limitation—obvious to a person of skill in the art.

Thus, patentability turns on whether a person of skill in the art, without reading the current specification but relying only on the state of the art reflected in the cited references,

would know that slurries containing boron compounds, silica sol, and ceramic material such as cordierite could be used in a method to improve the temperature stability of tiles into which the slurries are impregnated according to the methods of the invention. Since the claims are drawn to methods for using the slurries, patentability does not turn on the non-obviousness of the slurries themselves.

The amended claims now recited that the ratio of boron compound to binding agent (silica) in the slurries ranges from a maximum of 1:6 to a minimum of 1:900. Applicants respectfully submit that the invention as a whole, as reflected in the amended claims, would not have been obvious to a person of skill in the art in light of the cited references. As demonstrated in Mr. DiChiara's declaration and stated in the previous office action, the combination of the boron with silica sol/cordierite works at a higher temperature than it did in the prior art where the boron was not present. The current claims are amended to reflect that difference.

Applicant believes the current amendments put the case into condition for allowance. At page 4 of the Office Action, the Examiner states his willingness to reconsider the art rejections in light of amendments such as offered here. Applicant therefore respectfully requests entry of the amendment and reconsideration after the final rejection.

Applicant believes that he has provided persuasive evidence that the invention as a whole would not have been obvious to a person of skill in the art in light of the cited references. The invention as a whole includes the recited limitation that the tile protected by the slurries using the methods of the invention are stable to higher temperatures than they would be if treated by slurries not containing the boron compounds. Further, the claims contain a further limitation drawn to the levels of boron that suffice to give the performance recited in the claims. Accordingly, Applicant respectfully requests that the rejection be withdrawn.

CONCLUSION

For the reasons discussed above, Applicant believes that the claims as amended are patentable and respectfully requests an early notice of allowance. Alternatively, Applicant respectfully requests an Advisory Action stating whether the amendments can be entered and considered at this time. The Examiner is invited to telephone the undersigned Applicant's representatives if that would be helpful to resolving any issue.

Respectfully submitted,

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| Applicant: | Robert A. DiChiara Jr. | Case No.: | 7784-000171 |
| Serial No.: | 09/927,175 | Filing Date: | August 10, 2001 |
| Title: SURFACE PROTECTION OF POROUS CERAMIC BODIES | | | |

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